

WE CLAIM:

1. A method of processing a video image in a video camera having exposure and color balance adjustment means, the method comprising the step of:

adjusting the exposure and color balance settings for one field of video based on the luminance of a preceding field.

2. A method of processing a video image in a video camera having exposure and color balance adjustment means, the method comprising the step of:

adjusting the exposure settings on alternate fields of video, so that one field targets objects in dark areas of the image and an alternate field targets objects in bright areas of the image; and,

adjusting the color balance for each field based on the exposure setting for that field.

3. A method of processing a video image signal in a color video camera having shutter speed, analog gain and color balance adjustment means, the method comprising the steps of:

a) deriving a digital luminance signal from said analog video image signal;

b) analyzing the luminance signal over a first field of video;

c) determining, based on the analyzed luminance signal, a first set of control signals including a first shutter speed control signal and a first analog gain signal, the first set of control signals causing the luminance of a majority of pixels in a field of video to be below a first limit defining a workable range of luminance;

d) determining, from the first set of control signals, a first set of color balance settings;

e) during a second field of video, applying the first shutter speed control signal, the first analog gain signal and the first set of color balance settings to the shutter speed, analog gain and color balance adjustment means, respectively;

f) analyzing the luminance signal over the second field of video;

g) determining, based on the analyzed luminance signal, a second set of control signals including a second shutter speed control signal and a second analog gain signal

, the second set of control signals causing the luminance of a majority of pixels in a field of video to be above a second limit defining the workable range of luminance;

h) determining, from the second set of control signals, a second set of color balance settings; and,

5 i) during a next field of video, applying the second shutter speed control signal, the second analog gain signal and the second set of color balance settings to the shutter speed, analog gain and color balance adjustment means, respectively.

4. The method for processing a video image as claimed in Claim 3, the method further comprising the step of determining, from the luminance level of pixels in one field of video, a color offset for pixels in the next field of video.

10 5. A method as claimed in claim 3 and further comprising the steps of:

a) deriving color difference signals U and V from the analog video signal for each pixel; and,

b) for each pixel, comparing V with a threshold value representing green to determine if a pixel is green.

15 6. A method as claimed in claim 5 and further comprising the steps of:

a) determining, from the luminance level of pixels in one field of video, a color offset for pixels in the next field of video; and,

b) modifying said threshold value according to said color offset.

20 7. Apparatus for processing an analog video signal of a scene, said apparatus comprising:

a color video camera having therein a shutter speed control circuit, an analog gain circuit for adjusting the gain of the analog video signal, an analog to digital converter for converting a video output signal from said analog gain circuit into a digital signal for each pixel of the image, and luminance and chrominance signal processing circuits responsive to the digital signal for producing a luminance signal and color difference signals for each pixel;

a histogram counter responsive to the luminance signal for counting during one field the number of pixels having a luminance greater than a maximum level and for counting during the next field the number of pixels having a luminance less than a minimum level; and,

5 a controller for developing a shutter speed control signal, an analog gain control signal and color gain control signals for controlling said shutter speed control circuit, said analog gain circuit and said chrominance signal processing circuits, respectively,

10 said controller being responsive to the count obtained during said one field to develop a shutter speed control signal and an analog gain signal for bringing luminance of a majority of the pixels below said maximum level during the next field, and responsive to the count obtained during said next field to develop a shutter speed control signal and an analog gain signal for bringing luminance of a majority of the pixels above said minimum level a next succeeding field.

15 8. Apparatus as claimed in claim 7 wherein said controller includes means for deriving said color gain control signal from the shutter speed control signal and the analog gain control signal.